Research Article

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The US, China and Huawei Debate on 5G Telecom Technology: Global Apprehensions and the Indian Scenario

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Abstract: Advancements in connectivity and telecommunications have redefined the ways people access information and services. The 5th Generation of telecom technology which is set to open up new avenues and opportunities have but stirred up a series of escalating tensions between two mighty powers in global politics- the US and China. While 5G offers an array of options for global trade and co-operation to flourish, it has generated counter-intuitive results, at least temporarily, with the US adopting a protectionist standpoint to contain the Chinese dominance in the telecom sector, citing security concerns. The US lobbying against Chinese vendors, particularly Huawei, has generated uncertainty among countries on the adoption and deployment of equipment provided by the firm. The paper attempts to comprehend the issues revolving around Huawei, its extent of influence, the global impact of US sanctions and to explore the ways forward for countries like India.

Keywords: United States; China; Huawei; India; Telecommunication Technology.

1 Introduction

5th-Generation (5G) technology in telecommunications is garnering huge attention from around the world from among major State and non-State actors and varying disciplines of study ranging from technology to social science. The relevance of having a nuanced understanding of the developments in this field and its repercussions in international politics can be captured by a simple historical reference to World War II. Successful efforts, during the war, by the British and Polish mathematicians and crypto-experts to intercept and decipher the German communication system encrypted with the Enigma typewriters curtailed the hostilities between Germany and the allied forces by two years (Lycett, 2011).

The use of Enigma machines was restricted to military and strategic activities, whereas the 5G of telecom technology could be everywhere around us, ranging from mobile handsets, traffic monitoring services, military services, robotics, drone-based technology, medical sector, cross-platform automated service delivery and so on. It is one step closer towards achieving the goal of setting up an internet of things (IoT) and can provide speeds ten to twenty times faster than the present networks, thus opening up new frontiers in wireless communication.[1] It is in this backdrop that the escalating tensions between China and the United States are to be assessed, with the bone of contention being the Chinese tech-behemoth Huawei Technologies Co., Ltd. which, as on date, is the world's largest telecommunication equipment manufacturer.

1 The projected top speed for 5G is between 1 and 10 Gbps for downloads with latency of 1 millisecond. In operation, a minimum average download speed of 50 Mbps with latency of 10 milliseconds can be expected, which is much faster in comparison to the average 4G LTE download speeds that is around 15 Mbps with 50 milliseconds of latency.

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2 Background of the Issue

The United States has remained sceptical about Huawei for a long time and has always seen it as a Chinese tool for espionage with the potential of sabotaging its telecommunication network. The US position is that in the case of a war involving China, the equipment provided by Huawei could be used for *connectivity sabotage* or *denial of access* attacks. The perception of threat grew so severe that according to the sensitive information leaked by Edward Snowden, a whistle-blower who worked on contract with the US National Security Agency (NSA), the American spies were, under an NSA intelligence project codenamed 'shotgiant', peeking into the Huawei headquarters since at least 2010. (Blustein, 2019).

President Donald Trump, in August 2018, signed the National Defence Authorization Act for the Fiscal Year 2019, section 889[2] of which restricts US companies from procuring instruments, over technologies that are concerned with national security from Huawei Technologies Co. Ltd, ZTE Corp., Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company and Dahua Technology Company (or any subsidiary or affiliate of such entities). The bill also allowed the transfer of funds to companies that had to get their equipment replaced (Congressional Research Service, 2018).

Accusing the Chinese of "unfair policies and practices" the US had imposed trade tariffs worth $200 billion in September 2018 and China had retaliated to it by imposing tariffs worth $60 billion on commodities originating from the states in the US which are more supportive of the Trump administration. Trump had issued an open warning to the trade partners of the United States that they will be *"tariffed!"* (Trump, 2018) if they do not adopt fair trade practices with the US.

A major point to note in this context is a deviation in the long-standing policy of the US regarding trade and foreign relations wherein in May 2019, the President, through proclamation, terminated the beneficiary status of Turkey and India for the Generalized System of Preferences[3] (Executive Office of the President, 2019a) (Executive Office of the President, 2019b). The course of actions by the US, according to experts is either tilted towards the policy of protectionism towards the American market or, according to a few others, is aiming to gain better deals from its foreign trade partners by forcing them into tougher tariff rates to do business with (Blustein, 2019).

The simmering tensions between the United States and China spilt over with the arrest of Huawei's Chief Financial Officer Meng Wanzhou in Vancouver, Canada on 1 December 2018 by Canadian authorities upon the request of the United States. China retaliated to Canada's action in nine days by detaining Canadian ex-diplomat Michael Kovrig and Canadian entrepreneur Michael Spavor on allegations of "engaging in activities that endanger the national security" of the State. On 15 January 2018, China also sentenced Robert Lloyd Schellenberg, a Canadian citizen, to death after the Dalian Intermediate People's Court in north-eastern China convicted him on charges of drug smuggling.

The United States—Department of Justice had confirmed on 22 January 2019 that it will seek the extradition of Meng Wanzhou from Canada to the US. 23 major indictments were hammered on Huawei in the Western District of Washington state on 16 January 2019 and the Eastern District of New York on 24 January 2019. A 13-count indictment unsealed in the Federal Court in Brooklyn, New York on 28 January 2019 spelt out charges against four defendants - Huawei Technologies Co. Ltd., Huawei Device USA Inc., Skycom Tech Co. Ltd. and Meng Wanzhou. These include engaging in corporate espionage, theft of technology to compete in the world market, money laundering, conspiracy to defraud the United States, obstruction of justice etc. (The US Department of Justice, 2019). Canada officially received the extradition request on 29 January 2019. The Department of Justice Canada issued an Authority to Proceed on 1 March 2019 thereby, formally commencing the extradition process in the case of Ms Meng (Department of Justice Canada, 2019). According to court documents, she attended court on 20 January 2020 as part of the pre-extradition hearing to appeal against her extradition to the United States.

Another major charge levelled against Huawei is the violation of US trade sanctions over Iran. The United States had raised suspicions over Huawei's illicit trade with Iran since 2016 after documents from ZTE Corp. came out which

2 Huawei filed a lawsuit in March 2019 against the US government in a US federal court in Texas, challenging the constitutionality of Section 889 of the National Defense Authorization Act for Fiscal Year 2019.

3 Generalized System of Preferences is the oldest and largest US trading preference programme aimed at providing the developing world an opportunity to use trade to improve their economies. It was established by the Trade Act of 1974 and encourages economic development by eliminating tariffs on several goods purchased from beneficiary countries and territories.

indicated towards engaging in trade with countries such as Syria, North Korea, Cuba and Iran through intermediaries, violating the US sanctions. The documents also mentioned about a company codenamed *F7* to have engaged in trade with the aforementioned States and the details in the document hinted towards *codename-F7* being Huawei (Arthur, 2018).

On 15 May 2019, President Trump issued an executive order that sought to secure the information and communication technology and services supply chain of the US. Although the order did not spell out the name of any firm or company, it authorized the Secretary of Commerce to determine the transactions and entities that posed a potential risk (Executive Office of the President, 2019c). On the very next day, the Bureau of Industry and Security (BIS) of the US Department of Commerce announced the addition of Huawei Technologies Co. Ltd. and its affiliates to the Bureau's Entity List (Bureau of Industry and Security, 2019). Subsequently, on 28 October 2019, the chairman of the Federal Communications Commission (FCC) Ajit Pai presented a two-part proposal which would restrict telecom companies from purchasing equipment or services from Huawei and ZTE Corp. using any support they receive from FCC's Universal Service Fund (USF). Besides this, the draft also proposed to make a rule that would require the USF-eligible telecommunication carriers to remove the existing equipment procured from the aforementioned companies and submit an estimate of monetary assistance that would be required to effect the replacement (Federal Communications Commission, 2019).

3 Global Impacts

The storm set-off by the arrest of Meng started hitting the shores of other countries as the United States started lobbying against Huawei among its allies and trade partners. As a result, Australia, New Zealand and Japan have banned Huawei from competing in the bid for building their 5G telecommunication network. Huawei's influence has been very significant in the telecom sector of Scandinavian countries. Huawei started its operations in Norway and Denmark in 2007 and had signed a contract worth $700 million in 2013 with TDC, Denmark's largest telecom company. The contract aimed to change the equipment at all of its base stations, the impact of which spanned over 70% of the entire Danish population. The services offered by Huawei were assessed to be of superior quality and extremely cost-efficient that in 2016 TDC again partnered with the firm to upgrade its co-axial cable network. In 2009, Huawei partnered with Telenor for a deal worth $120 million to build Norway's LTE network. Sweden houses Ericsson, one of Huawei's biggest global competitors and Huawei started its operations in the Swedish market in 2000. By 2009 it got hired to supply LTE kits for the *Net4Mobility* project, a joint initiative by Telenor and Tele2. The firm's entry into Sweden turned out to be a jolt for Ericsson which later released a press statement explaining the company's inability to compete with the Chinese vendor in terms of pricing (Jiang, Tonami, & Fejerskov, 2016). The recent debate raised by the US on Huawei's security issues has now impacted on the Scandinavian telecom sector with carriers such as Telenor and Telia preferring Ericsson over Huawei to build the 5G networks. Huawei has offered to formalize a *no-spying* agreement with the Governments to re-establish its credibility. Although the Government agencies welcomed the initiative, they remain ever more sceptical on engaging with the firm as the US sanctions continue and the company's prospects to expand its 5G infrastructure to the Scandinavian market has dimmed (O'Dwyer, 2019).

Despite the US lobbying and sanctions, several countries have opened up their arena for the Chinese player to bid on building their 5G infrastructure[4]. An agreement between Russian telecom giant MTS and Huawei was signed in June 2019 in the presence of Chinese President Xi Jinping and Russian President Vladimir Putin on the occasion of the Chinese President's visit to Russia to take part in the St. Petersburg International Economic Forum (SPIEF). The MTS-Huawei 5G pilot project was launched in Moscow and Kronshtadt by late August 2019. The Swiss telecom giant Sunrise partnered with Huawei to open the first 5G Innovation Centre in Europe in October 2019 aiming to build the Swiss 5G Ecosystem (Busvine, 2019). Arab countries such as Bahrain and the United Arab Emirates are also expressing their confidence with Huawei equipment and are employing it in building the infrastructure (Khalid, 2019). With an exception of Vietnam, the whole of South-East Asia has welcomed Huawei, with Malaysia's Maxis, Philippines' Globe Telecom etc. partnering with the company and Thailand setting up Huawei's first 5G testbed in South-East Asia (Thomas, 2019). A few countries such as the United Kingdom and Canada has deferred the decision making exercise

4 In September 2019, Huawei claimed that it secured over fifty 5G commercial contracts worldwide and shipped over 2,00,000 Modules.

taking into consideration the affairs in domestic politics and in anticipation of the repercussion in foreign relations, particularly with the US (Wintour, 2019).

Germany, in October 2019, finalized its rules for building the 5G infrastructure and has placed no restrictions on Huawei despite US lobbying. The German telecom sector has been largely depended on Huawei for building its networks and is now looking forward to partnering with the company to implement 5G (Rinke & Busvine, 2019). According to a recent report by Opensignal, an agency that sets an independent global standard for consumer experience on mobile networks, Germany ranks 70th in 4G LTE availability and 44th in 4G LTE speeds out of the 88 countries compared (Opensignal, 2018). The country cannot afford to trail with such low standards when it comes to 5G. Keeping Huawei out would incur Germany greater costs to achieve its goals with 5G and would also lead to missing out with the expertise which the company has, thereby delaying the entire exercise (German-Foreign-Policy, 2018). Hence roping in Huawei for the bid for 5G is inevitable for Germany despite the US warning that it will have to reconsider its intelligence sharing with the country if it uses equipment manufactured by the company (Atwood & Gaouette, 2019). This has raised the temperature among other allies of the United States as they fear that the US might proceed with similar moves against them too, thereby crushing the ambitions for a faster and more cost-effective implementation of 5G.

The US is playing the card of forcing its allies to fall in line by restricting access to critical facilities as there lacks any solid evidence to back its claim that Huawei is a Chinese tool for espionage. The argument that Huawei is the Chinese Communist Party's spearhead to achieve China's goal of dominating the world technology market pivots on its founder and Chief Executive Officer Ren Zhengfei and his connections with the Chinese Communist Party and the People's Liberation Army. Ren, who is also the father of Meng Wanzhou, had worked with the People's Liberation Army as an engineer before he founded Huawei. The company's sudden growth in just 30 years or more to become the world leader in telecommunication is capitalized by the US government to assert that the company has received huge funding and subsidies from the Chinese government to engage in spying. Ren Zhengfei has outrightly denied all allegations against him and his company, and argued that by no logic would the company want to engage in espionage as it is already generating huge revenue by conducting business across the world and installing any *backdoors* in its equipment would lead to its customers losing faith in it, thereby giving a setback to revenues. The US attacks on Huawei, from the Chinese and even some of the Western perspectives, are a protectionist move targeted at foiling China's high-tech aspirations. This stems from the fact that allegations on Huawei that it owes its success to theft and fraud does not reasonably conform to the high expenditures in research and innovation and global patent records held by the firm (Blustein, 2019).

4 India's Concerns

According to Stephanie Segal, Senior Fellow at the Simon Chair in Political Economy, Centre for Strategic and International Studies, Washington, a feeling has surfaced wherein the US is demanding other nations to express their allegiance i.e. whether they are more inclined towards China or towards the US (Grauer & Chiu, 2019). In this backdrop, Huawei India's Chief Executive Officer Jay Chens' statement gains significance. "*Yes, for sure the US is lobbying (against Huawei) and everybody knows. I am talking about India*" (Press Trust of India, 2019). Thus, the United States' position on the adoption of Huawei equipment becomes a serious concern to India, a country which ranks 14th in terms of 4G LTE availability and 80th in terms of connectivity speed out of the 80 countries that were compared (Opensignal, 2018).

A 5G High Level Forum was set up by the Government of India in September 2017 to chalk out a road map on the country's policy on 5G telecom technology. The forum estimated a cumulative impact of 5G on the country to reach $1 trillion by 2035. The major priorities identified included - early deployment of technology to maximize the value benefits, building India's research and development capacities in the field and expanding the manufacturing base for 5G in terms of semiconductor fabrication and assembly. Acknowledging the immense significance of advanced digital infrastructure to be the underlying core of the Government's 'Digital India' initiative, the forum emphasized on a regulatory framework that would ensure zero-compromise on security, while meeting international standards of connectivity (5G High Level Forum, 2018).

5G technology demands the deployment of fresh infrastructure with greater densification of base stations, different from that of 4G LTE. The cost of deployment multiplies in such a scenario and hence developing countries such as India cannot turn a blind-eye to the cost efficiency of the exercise.

Although the Indian telecom sector has displayed huge growth in terms of an increase in the number of subscribers over the past decade, the equipment manufacturing sector has fared poorly. The country heavily depends on imports[5] for equipment and in 2017-18 alone, instruments worth $21847.92 million were imported to India (Telecom Regulatory Authority of India, 2018). Out of the total telecom equipment consumed by India, the lion's share is supplied by Chinese vendors, especially Huawei. The company started its operations in India in 1998 by setting up network outsourcing centres and as of today, it is a major supplier of equipment to many carriers including the government-owned Bharat Sanchar Nigam Limited (BSNL) and private companies such as Vodafone Idea, Bharathi Airtel, etc. It also operates a Global Network Operation Centre, a Centre of Expertise and a Global Service Centre in Bangalore.

In a letter to the Department of Telecommunications, the Cellular Operators Association of India (COAI) defended Huawei, stating that the company is in the forefront of innovation and equipped to build India's 5G infrastructure in compliance with the Government regulations. The COAI emphasized that the arbitrary exclusion of certain companies on hearsay will be detrimental to the digital aspirations of the nation (Gupta, 2018). The defence for Huawei by the COAI indicates the importance and role of the company in supplying equipment at a cost-effective price and good standards of quality to the Indian market. Lobbying by the United States to ban Huawei from building India's 5G networks hence pushes India to a dilemma as it shares warm relations with the US and prefers to improve intelligence sharing and co-operation and at the same time aspires to deploy 5G technology at the earliest.

5 Conclusion

A crackdown merely based on suspicions cannot be taken for its face value by countries to determine the future of their critical infrastructure. The sanctions imposed by the US were expected to push Huawei out of business as it restricted the supply of software, operating systems and microprocessors manufactured by US-based companies. But Huawei proved to be a tough nut to crack as it endorsed alternative free and open-source software and operating systems and invested more on developing its own native brand of processors and digital ecosystem. As such, there are no indications of the tensions receding. Global politics is witnessing the world of telecom technology split into two camps based on the adoption of Huawei in building the 5G infrastructure–one that aligns with the United States in its effort to contain the Chinese dominance in the realm and the other which prefers to side with China in ventures to rapidly advance the information and communication technology capabilities.

The issue that has now gained momentum in the case of 5G is not to be viewed as an isolated instance. Technology will further evolve as new dimensions of development remain yet to be explored. A crisis of similar or greater gravity is imminent to arise in a scenario where the US is trying to retain its dominance in global politics and allied areas and China trying to emerge as the new global superpower. Barely manoeuvring through the present situation without antagonizing the superpowers does not offer a sustainable solution. The situation offers two viable ways forward for countries such as India. The first alternative is to establish a permanent high-level statutory body consisting of experts in the field of technology, security and finance, tasked with the duty of evaluating the pros and cons on the adoption of new-age technologies and advising the government on the suitable measures that have to be taken, warranted by statistics and reports on technical advantages. This would enable developing countries such as India to adopt, advocate and adhere to a policy framework stridently based on technical merits and security concerns regarding issues related to purchase of critical infrastructure from private vendors and to maintain a non-aligned position with regard to the political polarization that is arising between the global superpowers. The second option is to cultivate and harness the potential within and create alternative centres and hubs of manufacturing thereby becoming self-sufficient in telecom equipment supplies. Though it seems to be the most ideal way forward, the feasibility of implementing it immediately is low and until then the most favourable position would be to compartmentalize the issue, strictly as an internal affair and defend the choices based on a robust policy framework rather than cashing in upon the crisis as an opportunity to prove allegiances.

5 The Telecom Regulatory Authority of India has recommended that India should aim and achieve net zero imports of telecom equipment by 2022. The regulatory body suggested the creation of an initial fund of Rs 10 billion to promote research and development in the sector.

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